Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1.-34. (Canceled)

35. A method of evaluating a shape of a semiconductor wafer comprising the steps of:

measuring shape data of a semiconductor wafer by scanning a front surface and/or a back surface of the semiconductor wafer;

calculating a differential profile through a differential process of the measured shape data;

analyzing the obtained differential profile and obtaining a surface characteristic of the wafer, and;

evaluating a shape of the semiconductor wafer.

36. The method of evaluating a shape of a semiconductor wafer according to claim 35, wherein the surface characteristic of the semiconductor wafer is obtained at least in the peripheral portion of the semiconductor wafer.

37. The method of evaluating a shape of a semiconductor wafer according to claim 35, wherein the shape data of the semiconductor wafer are measured by scanning the front surface and/or the back surface of the semiconductor wafer at an interval of 1 mm or less.

38. The method of evaluating a shape of a semiconductor wafer according to claim 36, wherein the shape data of the semiconductor wafer are measured by scanning the front surface and/or the back surface of the semiconductor wafer at an interval of 1 mm or less.

39. The method of evaluating a shape of a semiconductor wafer according to claim 35, wherein the shape data of the semiconductor wafer are displacement data of a plane of the semiconductor wafer and/or thickness data of the semiconductor wafer.

40. The method of evaluating a shape of a semiconductor wafer according to claim 38, wherein the shape data of the semiconductor wafer are displacement data of a plane of the semiconductor wafer and/or thickness data of the semiconductor wafer.

41. The method of evaluating a shape of a semiconductor wafer according to claim 39, wherein the displacement data of the plane of the semiconductor wafer are displacement of a plane in a direction of thickness in the front surface or the back surface of the wafer when the semiconductor wafer is placed without suction.

42. The method of evaluating a shape of a semiconductor wafer according to claim 40, wherein the displacement data of the plane of the semiconductor wafer are displacement of a plane in a direction of thickness in the front surface or the back surface of the wafer when the semiconductor wafer is placed without suction.

43. The method of evaluating a shape of a semiconductor wafer according to claim 39, wherein the thickness data of the semiconductor wafer are displacement of a plane in a direction of thickness in one main surface of the wafer when an entire of another main surface of the semiconductor wafer is sucked.

44. The method of evaluating a shape of a semiconductor wafer according to claim 40, wherein the thickness data of the semiconductor wafer are displacement of a plane in a direction of thickness in one main surface of the wafer when an entire of another main surface of the semiconductor wafer is sucked.

45. The method of evaluating a shape of a semiconductor wafer according to claim 39, wherein the displacement data of the plane of the semiconductor wafer are displacement of planes in a direction of thickness in the front surface and the back surface of the wafer

when a part of the semiconductor wafer is sucked with a wafer holder, and the thickness data of the semiconductor wafer are difference of the displacement data of planes in the front surface and the back surface of the wafer when a part of the semiconductor wafer is sucked.

46. The method of evaluating a shape of a semiconductor wafer according to claim 40, wherein the displacement data of the plane of the semiconductor wafer are displacement of planes in a direction of thickness in the front surface and the back surface of the wafer when a part of the semiconductor wafer is sucked with a wafer holder, and the thickness data of the semiconductor wafer are difference of the displacement data of planes in the front surface and the back surface of the wafer when a part of the semiconductor wafer is sucked.

47. The method of evaluating a shape of semiconductor wafer according to claim 35, wherein the differential process of the measured shape data is performed by, at first, drawing a shape profile along a radial direction from the measured shape data, and calculating a differential profile through differentiation of the shape profile at a constant interval with setting an arbitrary point as a reference.

48. The method of evaluating a shape of a semiconductor wafer according to claim 42, wherein the differential process of the measured shape data is performed by, at first, drawing a shape profile along a radial direction from the measured shape data, and calculating a differential profile through differentiation of the shape profile at a constant interval with setting an arbitrary point as a reference.

49. The method of evaluating a shape of a semiconductor wafer according to claim 44, wherein the differential process of the measured shape data is performed by, at first, drawing a shape profile along a radial direction from the measured shape data, and calculating a differential profile through differentiation of the shape profile at a constant interval with setting an arbitrary point as a reference.

50. The method of evaluating a shape of a semiconductor wafer according to claim 46, wherein the differential process of the measured shape data is performed by, at first, drawing a shape profile along a radial direction from the measured shape data, and calculating a differential profile through differentiation of the shape profile at a constant interval with setting an arbitrary point as a reference.

51. The method of evaluating a shape of a semiconductor wafer according to claim 47, wherein a second differential profile is used as the differential profile, which is calculated by differentiating the shape profile at a constant interval with setting an arbitrary point as a reference to calculate a first differential profile, and subsequently further differentiating the first differential profile at a constant interval.

52. The method of evaluating a shape of semiconductor wafer according to claim 48, wherein a second differential profile is used as the differential profile, which is calculated by differentiating the shape profile at a constant interval with setting an arbitrary point as a reference to calculate a first differential profile, and subsequently further differentiating the first differential profile at a constant interval.

53. The method of evaluating a shape of semiconductor wafer according to claim 49, wherein a second differential profile is used as the differential profile, which is calculated by differentiating the shape profile at a constant interval with setting an arbitrary point as a reference to calculate a first differential profile, and subsequently further differentiating the first differential profile at a constant interval.

54. The method of evaluating a shape of a semiconductor wafer according to claim 50, wherein a second differential profile is used as the differential profile, which is calculated by differentiating the shape profile at a constant interval with setting an arbitrary point as a reference to calculate a first differential profile, and subsequently further differentiating the first differential profile at a constant interval.

55. The method of evaluating a shape of a semiconductor wafer according to claim 47, wherein the shape profile is differentiated at an interval of 1 mm.

56. The method of evaluating a shape of a semiconductor wafer according to claim 52, wherein the shape profile is differentiated at an interval of 1 mm.

57. The method of evaluating a shape of a semiconductor wafer according to claim 53, wherein the shape profile is differentiated at an interval of 1 mm.

58. The method of evaluating a shape of a semiconductor wafer according to claim 54, wherein the shape profile is differentiated at an interval of 1 mm.

59. The method of evaluating a shape of a semiconductor wafer according to claim 51, wherein the first differential profile is differentiated at an interval of 1 mm.

60. The method of evaluating a shape of a semiconductor wafer according to claim 56, wherein the first differential profile is differentiated at an interval of 1 mm.

61. The method of evaluating a shape of a semiconductor wafer according to claim 57, wherein the first differential profile is differentiated at an interval of 1 mm.

62. The method of evaluating a shape of semiconductor wafer according to claim 58, wherein the first differential profile is differentiated at an interval of 1 mm.

63. The method of evaluating a shape of a semiconductor wafer according to claim 47, wherein removal of components with long wavelengths and/or measured noise is conducted when calculating the differential profile.

64. The method of evaluating a shape of a semiconductor wafer according to claim 60, wherein removal of components with long wavelengths and/or measured noise is conducted when calculating the differential profile.

65. The method of evaluating a shape of a semiconductor wafer according to claim 61, wherein removal of components with long wavelengths and/or measured noise is conducted when calculating the differential profile.

66. The method of evaluating a shape of a semiconductor wafer according to claim 62, a wherein removal of components with long wavelengths and/or measured noise is conducted when calculating the differential profile.

67. The method of evaluating a shape of semiconductor wafer according to claim 63, wherein the removal of components with long wavelengths is conducted by means of least squares approximation or high-pass filter.

68. The method of evaluating a shape of a semiconductor wafer according to claim 64, wherein the removal of components with long wavelengths is conducted by means of least squares approximation or high-pass filter.

69. The method of evaluating a shape of a semiconductor wafer according to claim 65, wherein the removal of components with long wavelengths is conducted by means of least squares approximation or high-pass filter.

70. The method of evaluating a shape of a semiconductor wafer according to claim 66, wherein the removal of components with long wavelengths is conducted by means of least squares approximation or high-pass filter.

71. The method of evaluating a shape of a semiconductor wafer according to claim 63, wherein the removal of the measured noise is performed by means of moving average or low-pass filter.

72. The method of evaluating a shape of a semiconductor wafer according to claim 64, wherein the removal of the measured noise is performed by means of moving average or low-pass filter.

73. The method of evaluating a shape of a semiconductor wafer according to claim 65, wherein the removal of the measured noise is performed by means of moving average or low-pass filter.

74. The method of evaluating a shape of a semiconductor wafer according to claim 66, wherein the removal of the measured noise is performed by means of moving average or low-pass filter.

75. The method of evaluating a shape of a semiconductor wafer according to claim 35, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the calculated differential profile as a most peripheral data point Al, scanning the differential profile from the most peripheral data point Al to a center of the wafer and detecting a point where zero is firstly obtained as a Roll Off starting point B1, and performing analysis with setting the Roll Off starting point Bl as a reference.

76. The method of evaluating a shape of a semiconductor wafer according to claim 68, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the calculated differential profile as a most peripheral data point Al, scanning the differential profile from the most peripheral data point Al to a center of the wafer and detecting a point where zero is firstly obtained as a Roll Off starting point B1, and performing analysis with setting the Roll Off starting point Bl as a reference.

77. The method of evaluating a shape of a semiconductor wafer according to claim 69, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the calculated differential profile as a most peripheral data point Al, scanning the differential profile from the most peripheral data point Al to a center of the wafer and detecting a point where zero is firstly obtained as a Roll Off starting point B1, and performing analysis with setting the Roll Off starting point B1 as a reference.

78. The method of evaluating a shape of a semiconductor wafer according to claim 70, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the calculated differential profile as a most peripheral data point Al, scanning the differential profile from the most peripheral data point Al to a center of the

wafer and detecting a point where zero is firstly obtained as a Roll Off starting point B1, and performing analysis with setting the Roll Off starting point Bl as a reference.

79. The method of evaluating a shape of a semiconductor wafer according to claim 72, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the calculated differential profile as a most peripheral data point Alt scanning the differential profile from the most peripheral data point Al to a center of the wafer and detecting a point where zero is firstly obtained as a Roll Off starting point B1, and performing analysis with setting the Roll Off starting point 21 as a reference.

80. The method of evaluating a shape of a semiconductor wafer according to claim 73, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the calculated differential profile as a most peripheral data point Al, scanning the differential profile from the most peripheral data point Al to a center of the wafer and detecting a point where zero is firstly obtained as a Roll Off starting point B1, and performing analysis with setting the Roll Off starting point B1 as a reference.

81. The method of evaluating a shape of a semiconductor wafer according to claim 74, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the calculated differential profile as a most peripheral data point Al, scanning the differential profile from the most peripheral data point Al to a center of the wafer and detecting a point where zero is firstly obtained as a Roll Off starting point B1, and performing analysis with setting the Roll Off starting point B1 as a reference.

82. The method of evaluating a shape of a semiconductor wafer according to claim 35, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the calculated differential profile as a most peripheral data point Al, scanning the differential profile from the most peripheral data point Al to a center of the wafer and detecting a position where a maximum value is obtained as a Flip Up maximum

slope position Cl, and performing analysis with setting the Flip Up maximum slope position Cl as a reference.

83. The method of evaluating a shape of a semiconductor wafer according to claim 76, wherein the surface characteristic of the semiconductor point of the calculated differential profile as a most peripheral data point Al, scanning the differential profile from the most peripheral data point Al to a center of the wafer and detecting a position where a maximum value is obtained as a Flip Up maximum slope position Cl, and performing analysis with setting the Flip Up maximum slope position Cl as a reference.

84. The method of evaluating a shape of a semiconductor wafer according to claim 77, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the calculated differential profile as a most peripheral data point Al, scanning the differential profile from the most peripheral data point Al to a center of the wafer and detecting a position where a maximum value is obtained as a Flip Up maximum slope position Cl, and performing analysis with setting the Flip Up maximum slope position Cl as a reference.

85. The method of evaluating a shape of a semiconductor wafer according to claim 78, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the calculated differential profile as a point of the calculated differential profile as a most peripheral data point Al, scanning the differential profile from the most peripheral data point Al to a center of the wafer and detecting a position where a maximum value is obtained as a Flip Up maximum slope position Cl, and performing analysis with setting the Flip Up maximum slope position Cl as a reference.

86. The method of evaluating a shape of a semiconductor wafer according to claim 79, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the calculated differential profile as a most peripheral data point Al,

scanning the differential profile from the most peripheral data point Al to a center of the wafer and detecting a position where a maximum value is obtained as a Flip Up maximum slope position Cl, and performing analysis with setting the Flip Up maximum slope position Cl as a reference.

87. The method of evaluating a shape of a semiconductor wafer according to claim 80, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the calculated differential profile as a most peripheral data point Al, scanning the differential profile from the most peripheral data point Al to a center of the wafer and detecting a position where a maximum value is obtained as a Flip Up maximum slope potion C1, and performing analysis with setting the Flip Up maximum slope position C1 as a reference.

88. The method of evaluating a shape of a semiconductor wafer according to claim 81, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the calculated differential profile as a most peripheral data point Al, scanning the differential profile from the most peripheral data point Al to a center of the wafer and detecting a position where a maximum value is obtained as a Flip Up maximum slope position Cl, and performing analysis with setting the Flip Up maximum slope position Cl as a reference.

89. The method of evaluating a shape of a semiconductor wafer according to claim 82, wherein the surface characteristic of the semiconductor wafer is obtained by scanning the differential profile from the calculated Flip Up maximum slope position Cl to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up starting point D1, and performing analysis with setting the Flip Up starting point D1 as a reference.

90. The method of evaluating a shape of a semiconductor wafer according to claim 83, wherein the surface characteristic of the semiconductor wafer is obtained by scanning the

differential profile from the calculated Flip Up maximum slope position Cl to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up starting point D1, and performing analysis with setting the Flip Up starting point D1 as a reference.

91. The method of evaluating a shape of a semiconductor wafer according to claim 84, wherein the surface characteristic of the semiconductor wafer is obtained by scanning the differential profile from the calculated Flip Up maximum slope position Cl to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up starting point D1, and performing analysis with setting the Flip Up starting point D1 as a reference.

92. The method of evaluating a shape of a semiconductor wafer according to claim 85, wherein the surface characteristic of the semiconductor wafer is obtained by scanning the differential profile from the calculated Flip Up maximum slope position Cl to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up starting point D1, and performing analysis with setting the Flip Up starting point D1 as a reference.

93. The method of evaluating a shape of a semiconductor wafer according to claim 86, wherein the surface characteristic of the semiconductor wafer is obtained by scanning the differential profile from the calculated Flip Up maximum slope position Cl to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up starting point D1, and performing analysis with setting the Flip Up starting point D1 as a reference.

94. The method of evaluating a shape of a semiconductor wafer according to claim 87, wherein the surface characteristic of the semiconductor wafer is obtained by scanning the differential profile from the calculated Flip Up maximum slope position Cl to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up starting point D1, and performing analysis with setting the Flip Up starting point D1 as a reference.

95. The method of evaluating a shape of a semiconductor wafer according to claim 88, wherein the surface characteristic of the semiconductor wafer is obtained by scanning the

differential profile from the calculated Flip Up maximum slope position Cl to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up starting point D1, and performing analysis with setting the Flip Up starting point D1 as a reference.

96. The method of evaluating a shape of a semiconductor wafer according to claim 51, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the second differential profile calculated as the differential profile as a most peripheral data point A2, scanning the second differential profile from the most peripheral data point A2 to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up maximum slope position C2, and performing analysis with setting the Flip Up maximum slope position C2 as a reference.

97. The method of evaluating a shape of a semiconductor wafer according to claim 90, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the second differential profile calculated as the differential profile as a most peripheral data point A2, scanning the second differential profile from the most peripheral data point A2 to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up maximum slope position C2, and performing analysis with setting the Flip Up maximum slope position C2 as a reference.

98. The method of evaluating a shape of a semiconductor wafer according to claim 91, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the second differential profile calculated as the differential profile as a most peripheral data point 'A2, scanning the second differential profile from the most peripheral data point A2 to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up maximum slope position C2, and performing analysis with setting the Flip Up maximum slope position C2 as a reference.

99. The method of evaluating a shape of a semiconductor wafer according to claim 92, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the second differential profile calculated as the differential profile as a most peripheral data point A2, scanning the second differential profile from the most peripheral data point A2 to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up maximum slope position C2, and performing analysis with setting the Flip Up maximum slope position C2 as a reference.

100. The method of evaluating a shape of a semiconductor wafer according to claim 93, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the second differential profile calculated as the differential profile as a most peripheral data point A2, scanning the second differential profile from the most peripheral data point A2 to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up maximum slope position C2, and performing analysis with setting the Flip Up maximum slope position C2 as a reference.

101. The method of evaluating a shape of a semiconductor wafer according to claim 94, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the second differential profile calculated as the differential profile as a most peripheral data point A2, scanning the second differential profile from the most peripheral data point A2 to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up maximum slope position C2, and performing analysis with setting the Flip Up maximum slope position C2 as a reference.

102. The method of evaluating a shape of a semiconductor wafer according to claim 95, wherein the surface characteristic of the semiconductor wafer is obtained by setting a most peripheral point of the second differential profile calculated as the differential profile as a most peripheral data point A2, scanning the second differential profile from the most

peripheral data point A2 to a center of the wafer and detecting a position where zero is firstly obtained as a Flip Up maximum slope position C2, and performing analysis with setting the Flip Up maximum slope position C2 as a reference.

103. The method of evaluating a shape of a semiconductor wafer according to claim 35, wherein a threshold is set to the differential profile, and a locally abnormal value of the shape of the wafer is detected.

104. The method of evaluating a shape of a semiconductor wafer according to claim 97, wherein a threshold is set to the differential profile, and a locally abnormal value of the shape of the wafer is detected.

105. The method of evaluating a shape of a semiconductor wafer according to claim 98, wherein a threshold is set to the differential profile, and a locally abnormal value of the shape of the wafer is detected.

106. The method of evaluating a shape of a semiconductor wafer according to claim 99, wherein a threshold is set to the differential profile, and a locally abnormal value of the shape of the wafer is detected.

107. The method of evaluating a shape of a semiconductor wafer according to claim 100, wherein a threshold is set to the differential profile, and a locally abnormal value of the shape of the wafer is detected.

108. The method of evaluating a shape of a semiconductor wafer according to claim 101, wherein a threshold is set to the differential profile, and a locally abnormal value of the shape of the wafer is detected.

109. The method of evaluating a shape of a semiconductor wafer according to claim 102, wherein a threshold is set to the differential profile, and a locally abnormal value of the shape of the wafer is detected.

110. The method of evaluating a shape of a semiconductor wafer according to claim 103, wherein the threshold is set at ±0.01 μm/mm.

111. The method of evaluating a shape of a semiconductor wafer according to claim 104, wherein the threshold is set at ±0.01 μm/mm.

112. The method of evaluating a shape of a semiconductor wafer according to claim 105, wherein the threshold is set at ±0.01 μm/mm.

113. The method of evaluating a shape of a semiconductor wafer according to claim 106, wherein the threshold is set at ±0.01 μm/mm.

114. The method of evaluating a shape of a semiconductor wafer according to claim 107, wherein the threshold is set at ±0.01 μm/mm.

115. The method of evaluating a shape of a semiconductor wafer according to claim 108, wherein the threshold is set at ±0.01 μm/mm.

116. The method of evaluating a shape of a semiconductor wafer according to claim 109, wherein the threshold is set at ±0.01 μm/mm.

117. The method of evaluating a shape of a semiconductor wafer according to claim 47, wherein the surface characteristic of the semiconductor wafer obtained along the radial direction is calculated all round the wafer.

118. The method of evaluating a shape of a semiconductor wafer according to claim 111, wherein the surface characteristic of the semiconductor wafer obtained along the radial direction is calculated all round the wafer.

119. The method of evaluating a shape of a semiconductor wafer according to claim 112, wherein the surface characteristic of the semiconductor wafer obtained along the radial direction is calculated all round the wafer.

120. The method of evaluating a shape of a semiconductor wafer according to claim 113, wherein the surface characteristic of the semiconductor wafer obtained along the radial direction is calculated all round the wafer.

121. The method of evaluating a shape of a semiconductor wafer according to claim 114, wherein the surface characteristic of the semiconductor wafer obtained along the radial direction is calculated all round the wafer.

122. The method of evaluating a shape of a semiconductor wafer according to claim 115, wherein the surface characteristic of the semiconductor wafer obtained along the radial direction is calculated all round the wafer.

123. The method of evaluating a shape of a semiconductor wafer according to claim 116, wherein the surface characteristic of the semiconductor wafer obtained along the radial direction is calculated all round the wafer.

124. The method of evaluating a shape of a semiconductor wafer according to claim 117, wherein the surface characteristic all round the semiconductor wafer is obtained at an interval of a central angle of the wafer of 1° or less.

125. The method of evaluating a shape of a semiconductor wafer according to claim 118, wherein the surface characteristic all round the semiconductor wafer is obtained at an interval of a central angle of the wafer of 1° or less.

126. The method of evaluating a shape of a semiconductor wafer according to claim 119, wherein the surface characteristic all round the semiconductor wafer is obtained at an interval of a central angle of the wafer of 1° or less.

127. The method of evaluating a shape of a semiconductor wafer according to claim 120, wherein the surface characteristic all round the semiconductor wafer is obtained at an interval of a central angle of the wafer of 1° or less.

128. The method of evaluating a shape of a semiconductor wafer according to claim 121, wherein the surface characteristic all round the semiconductor wafer is obtained at an interval of a central angle of the wafer of 1° or less.

129. The method of evaluating a shape of a semiconductor wafer according to claim 122, wherein the surface characteristic all round the semiconductor wafer is obtained at an interval of a central angle of the wafer of 1° or less.

130. The method of evaluating a shape of a semiconductor wafer according to claim 123, wherein the surface characteristic all round the semiconductor wafer is obtained at an interval of a central angle of the wafer of 1° or less.

131. An apparatus for evaluating a shape of a semiconductor wafer, comprising at least:

a shape measuring means for measuring shape data of a semiconductor wafer;

a memorizing means for storing the measured shape data;

a differential processing means for differentiating the stored shape data and calculating a differential profile, and;

a surface characteristic calculating means for obtaining a surface characteristic of the wafer by analyzing the calculated differential profile.

132. The apparatus for evaluating a shape of a semiconductor wafer according to claim 131, wherein the shape measuring means is a means such that displacement data of a plane are obtained as the shape data by measuring displacement of a plane in a direction of thickness in a front surface or a back surface of the semiconductor wafer placed without suction.

133. The apparatus for evaluating a shape of a semiconductor wafer according to claim 131, wherein the shape measuring means is a means such that thickness data are obtained as the shape data by measuring displacement of a plane in a direction of thickness in

one main surface of the semiconductor wafer of which an entire of another main surface is sucked.

134. The apparatus for evaluating a shape of a semiconductor wafer according to claim 131, wherein the shape measuring means is a means such that, as the shape data, displacement data of a plane are obtained by measuring displacement of planes in a direction of thickness in a front surface and a back surface of the semiconductor wafer of which a part is sucked by a wafer holder, and thickness data are obtained by measuring difference of the obtained displacement data of the planes in the front surface and the back surface of the wafer.

135. The apparatus for evaluating a shape of a semiconductor wafer according to claim 131, wherein the differential processing means is a means such that a shape profile along a radial direction is drawn from the shape data, and the differential profile is calculated through differentiation of the shape profile at a constant interval with setting an arbitrary position as a reference.

136. The apparatus for evaluating a shape of a semiconductor wafer according to claim 132, wherein the differential processing means is a means such that a shape profile along a radial direction is drawn from the shape data, and the differential profile is calculated through differentiation of the shape profile at a constant interval with setting an arbitrary position as a reference.

137. The apparatus for evaluating a shape of a semiconductor wafer according to claim 133, wherein the differential processing means is a means such that a shape profile along a radial direction is drawn from the shape data, and the differential profile is calculated through differentiation of the shape profile at a constant interval with setting an arbitrary position as a reference.

138. The apparatus for evaluating a shape of a semiconductor wafer according to claim 134, wherein the differential processing means is a means such that a shape profile along a radial direction is drawn from the shape data, and the differential profile is calculated through differentiation of the shape profile at a constant interval with setting an arbitrary position as a reference.

139. The apparatus for evaluating a shape of a semiconductor wafer according to claim 135, wherein the differential processing means is a means such that a first differential profile is calculated through differentiation of the shape profile at a constant interval with setting an arbitrary position as a reference, and subsequently a second differential profile is calculated through further differentiation of the first differential profile at a constant interval.

140. The apparatus for evaluating a shape of a semiconductor wafer according to claim 136, wherein the differential processing means is a means such that a first differential profile is calculated through differentiation of the shape profile at a constant interval with setting an arbitrary position as a reference, and subsequently a second differential profile is calculated through further differentiation of the first differential profile at a constant interval.

141. The apparatus for evaluating a shape of a semiconductor wafer according to claim 137, wherein the differential processing means is a means such that a first differential profile is calculated through differentiation of the shape profile at a constant interval with setting an arbitrary position as a reference, and subsequently a second differential profile is calculated through further differentiation of the first differential profile at a constant interval.

142. The apparatus for evaluating a shape of a semiconductor wafer according to claim 138, wherein the differential processing means is a means such that a first differential profile is calculated through differentiation of the shape profile at a constant interval with setting an arbitrary position as a reference, and subsequently a second differential profile is calculated through further differentiation of the first differential profile at a constant interval.

143. The apparatus for evaluating a shape of a semiconductor wafer according to claim 131, wherein the differential processing means is a means such that removal of components with long wavelengths and/or measured noise is conducted.

144. The apparatus for evaluating a shape of a semiconductor wafer according to claim 140, wherein the differential processing means is a means such that removal of components with long wavelengths and/or measured noise is conducted.

145. The apparatus for evaluating a shape of a semiconductor wafer according to claim 141, wherein the differential processing means is a means such that removal of components with long wavelengths and/or measured noise is conducted.

146. The apparatus for evaluating a shape of a semiconductor wafer according to claim 142, wherein the differential processing means is a means such that removal of components with long wavelengths and/or measured noise is conducted.

147. The apparatus for evaluating a shape of a semiconductor wafer according to claim 131, wherein the surface characteristic calculating means is a means such that a most peripheral point of the differential profile is set as a most peripheral data point Al, the differential profile is scanned from the most peripheral data point Al to a center of the wafer, a point where zero is firstly obtained is detected as a Roll Off starting point B1, analysis is performed with setting the Roll Off starting point B1 as a reference, and the surface characteristic of the wafer is obtained.

148. The apparatus for evaluating a shape of a semiconductor wafer according to claim 144, wherein the surface characteristic calculating means is a means such that a most peripheral point of the differential profile is set as a most peripheral data point A],, the differential profile is scanned from the most peripheral data point Al to a center of the wafer, a point where zero is firstly obtained is detected as a Roll Off starting point B1, analysis is

performed with setting the Roll Off starting point B1 as a reference, and the surface characteristic of the wafer is obtained.

149. The apparatus for evaluating a shape of a semiconductor wafer according to claim 145, wherein the surface characteristic calculating means is a means such that a most peripheral point of the differential profile is set as a most peripheral data point Al, the differential profile is scanned from the most peripheral data point Al to a center of the wafer, a point where zero is firstly obtained is detected as a Roll Off starting point B1, analysis is performed with setting the Roll Off starting point Bi as a reference, and the surface characteristic of the wafer is obtained.

150. The apparatus for evaluating a shape of a semiconductor wafer according to claim 146, wherein the surface characteristic calculating means is a means such that a most peripheral point of the differential profile is set as a most peripheral data point Al, the differential profile is scanned from the most peripheral data point Al to a center of the wafer, a point where zero is firstly obtained is detected as a Roll Off starting point Bl, analysis is performed with setting the Roll Off starting point B1 as a reference, and the surface characteristic of the wafer is obtained.

151. The apparatus for evaluating a shape of a semiconductor wafer according to claim 131, wherein the surface characteristic calculating means is a means such that a most peripheral point of the differential profile is set as a most peripheral data point Al, the differential profile is scanned from the most peripheral data point Al to a center of the wafer, a point where the maximum value is obtained is detected as a Flip Up maximum slope position Cl, analysis is performed with setting the Flip Up maximum slope position Cl as a reference, and the surface characteristic of the wafer is obtained.

152. The apparatus for evaluating a shape of a semiconductor wafer according to claim 148, wherein the surface characteristic calculating means is a means such that a most

peripheral point of the differential profile is set as a most peripheral data point Al, the differential profile is scanned from the most peripheral data point Al to a center of the wafer, a point where the maximum value is obtained is detected as a Flip Up maximum slope position Cl, analysis is performed with setting the Flip Up maximum slope position Cl as a reference, and the surface characteristic of the wafer is obtained.

153. The apparatus for evaluating a shape of a semiconductor wafer according to claim 149, wherein the surface characteristic calculating means is a means such that a most peripheral point of the differential profile is set as a most peripheral data point Al, the differential profile is scanned from the most peripheral data point Al to a center of the wafer, a point where the maximum value is obtained is detected as a Flip Up maximum slope position Cl, analysis is performed with setting the Flip Up maximum slope position Cl as a reference, and the surface characteristic of the wafer is obtained.

154. The apparatus for evaluating a shape of a semiconductor wafer according to claim 150, wherein the surface characteristic calculating means is a means such that a most peripheral point of the differential profile is set as a most peripheral data point Al, the differential profile is scanned from the most peripheral data point Al to a center of the wafer, a point where the maximum value is obtained is detected as a Flip Up maximum slope position Cl, analysis is performed with setting the Flip Up maximum slope position Cl as a reference, and the surface characteristic of the wafer is obtained.

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155. The apparatus for evaluating a shape of a semiconductor wafer according to claim 151, wherein the surface characteristic calculating means is a means such that the differential profile is scanned from the calculated Flip Up maximum slope position Cl to a center of the wafer, a position where zero is firstly obtained is detected as a Flip Up starting

point D1, analysis is performed with setting the Flip Up starting point D1 as a reference, and the surface characteristic of the wafer is obtained.

156. The apparatus for evaluating a shape of a semiconductor wafer according to claim 152, wherein the surface characteristic calculating means is a means such that the differential profile is scanned from the calculated Flip Up maximum slope position Cl to a center of the wafer, a position where zero is firstly obtained is detected as a Flip Up starting point D1, analysis is performed with setting the Flip Up starting point D1 as a reference, and the surface characteristic of the wafer is obtained.

157. The apparatus for evaluating a shape of a semiconductor wafer according to claim 153, wherein the surface characteristic calculating means is a means such that the differential profile is scanned from the calculated Flip Up maximum slope position Cl to a center of the wafer, a position where zero is firstly obtained is detected as a Flip Up starting point D1, analysis is performed with setting the Flip Up starting point D1 as a reference, and the surface characteristic of the wafer is obtained.

158. The apparatus for evaluating a shape of a semiconductor wafer according to claim 154, wherein the surface characteristic calculating means is a means such that the differential profile is scanned from the calculated Flip Up maximum slope position Cl to a center of the wafer, a position where zero is firstly obtained is detected as a Flip Up starting point Dl, analysis is performed with setting the Flip Up starting point D1 as a reference, and the surface characteristic of the wafer is obtained.

159. The apparatus for evaluating a shape of a semiconductor wafer according to claim 139, wherein the surface characteristic calculating means is a means such that a most peripheral point of the second differential profile calculated as the differential profile is set as a most peripheral data point A2, the second differential profile is scanned from the most peripheral data point A2 to a center of the wafer, a. position where zero is firstly obtained is

detected as a Flip Up maximum slope position C2, analysis is performed with setting the Flip Up maximum slope a position C2 as a reference, and the surface characteristic of the wafer is obtained.

160. The apparatus for evaluating a shape of a semiconductor wafer according to claim 156, wherein the surface characteristic calculating means is a means such that a most peripheral point of the second differential profile calculated as the differential profile is set as a most peripheral data point A2, the second differential profile is scanned from the most peripheral data point A2 to a center of the wafer, a position where zero is firstly obtained is detected as a Flip Up maximum slope position C2, analysis is performed with setting the Flip Up maximum slope position C2 as a reference, and the surface characteristic of the wafer is obtained.

161. The apparatus for evaluating a shape of a semiconductor wafer according to claim 157, wherein the surface characteristic calculating means is a means such that a most peripheral point of the second differential profile calculated as the differential profile is set as a most peripheral data point A2, the second differential profile is scanned from the most peripheral data point A2 to a center of the wafer, a position where zero is firstly obtained is detected as a Flip Up maximum slope position C2, analysis is performed with setting the Flip Up maximum slope position C2 as a reference, and the surface characteristic of the wafer is obtained.

162. The apparatus for evaluating a shape of a semiconductor wafer according to claim 158, wherein the surface characteristic calculating means is a means such that a most peripheral point of the second differential profile calculated as the differential profile is set as a most peripheral data point A2, the second differential profile is scanned from the most peripheral data point A2 to a center of the wafer, a position where zero is firstly obtained is detected as a Flip Up maximum slope position C2, analysis is performed with setting the Flip

Up maximum slope position C2 as a reference, and the surface characteristic of the wafer is obtained.

163. The apparatus for evaluating a shape of a semiconductor wafer according to claim 131, wherein the surface characteristic calculating means is a means such that a threshold is set to the differential profile, and a locally abnormal value of the shape of the wafer is detected.

164. The apparatus for evaluating a shape of a semiconductor wafer according to claim 160, wherein the surface characteristic calculating means is a means such that a threshold is set to the differential profile, and a locally abnormal value of the shape of the wafer is detected.

165. The apparatus for evaluating a shape of a semiconductor wafer according to claim 161, wherein the surface characteristic calculating means is a means such that a threshold is set to the differential profile, and a locally abnormal value of the shape of the wafer is detected.

166. The apparatus for evaluating a shape of a semiconductor wafer according to claim 162, wherein the surface characteristic calculating means is a means such that a threshold is set to the differential profile, and a locally abnormal value of the shape of the wafer is detected.